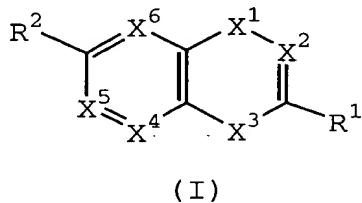


WHAT IS CLAIMED IS:

1. A method of treating inosine monophosphate dehydrogenase associated disorders comprising:  
 5 administering a therapeutically effective amount of a compound of formula (I)



10 including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates thereof wherein:

15       $X^1$  is  $C=O$ ,  $-S(O)-$ , or  $-S(O)_2-$ ;  
        $X^2$  is  $CR^3$  or  $N$ ;  
        $X^3$  is  $-NH-$ ,  $-O-$ , or  $-S-$ ;  
        $X^4$  is  $CR^4$  or  $N$ ;  
        $X^5$  is  $CR^5$  or  $N$ ;  
        $X^6$  is  $CR^6$  or  $N$ ;  
        $R^1$  is alkyl, substituted alkyl, alkenyl, substituted  
 20 alkenyl, alkynyl, substituted alkynyl,  $NR^8R^9$ ,  $SR^{20}$ , cycloalkyl, substituted cycloalkyl, aryl, substituted aryl, heterocycloalkyl, or heteroaryl;  
        $R^2$  is halogen, cyano, nitro, hydroxy, oxo (double bond is no longer present between  $CR^2$  and  $X^6$ ),  $SR^7$ ,  $S(O)R^7$ ,  
 25  $SO_2R^7$ ,  $SO_2NR^8R^9$ ,  $CO_2R^7$ ,  $C(O)NR^8R^9$ , or heteroaryl;  
        $R^3$  is hydrogen, hydroxy, halogen, cyano,  $CO_2R^7$ ,  $NR^8R^9$ , alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted cycloalkyl, aryl, substituted aryl, heterocycloalkyl or  
 30 heteroaryl;

~~R<sup>4</sup>, R<sup>5</sup>, and R<sup>6</sup> are independently selected from the group consisting of hydrogen, halogen, nitro, cyano, O-R<sup>7</sup>, NR<sup>8</sup>R<sup>9</sup>, SR<sup>7</sup>, S(O)R<sup>7</sup>, SO<sub>2</sub>R<sup>7</sup>, SO<sub>3</sub>R<sup>7</sup>, SO<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, CO<sub>2</sub>R<sup>7</sup>, C(O)NR<sup>8</sup>R<sup>9</sup>, C(O)alkyl, C(O)substituted alkyl, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl and substituted alkynyl;~~

~~R<sup>7</sup>, R<sup>10</sup>, and R<sup>11</sup>, are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, alkynyl, cycloalkyl, substituted cycloalkyl, C(O)alkyl, C(O)substituted alkyl, C(O)cycloalkyl, C(O)substituted cycloalkyl, C(O)aryl, C(O)substituted aryl, C(O)Oalkyl, C(O)Osubstituted alkyl, C(O)heterocycloalkyl, C(O)heteroaryl, aryl, substituted aryl, heterocycloalkyl and heteroaryl;~~

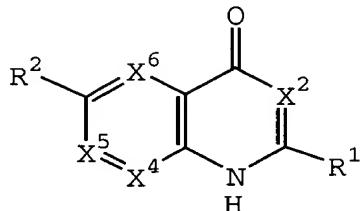
~~15 R<sup>8</sup> and R<sup>9</sup> are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, alkynyl, C(O)alkyl, C(O)substituted alkyl, C(O)cycloalkyl, C(O)substituted cycloalkyl, C(O)aryl, C(O)substituted aryl, C(O)Oalkyl, C(O)Osubstituted alkyl, C(O)heterocycloalkyl, C(O)heteroaryl, aryl, substituted aryl, heterocycloalkyl, and heteroaryl or R<sup>8</sup> and R<sup>9</sup> taken together with the nitrogen atom to which they are attached complete a heterocycloalkyl or heteroaryl ring;~~

~~20 R<sup>20</sup> is alkyl, substituted alkyl, cycloalkyl, aryl, substituted aryl, heteroaryl or heterocycloalkyl;~~

~~25 R<sup>3</sup> and R<sup>1</sup> may be taken together with the carbon atoms to which they are attached to form a monocyclic or substituted monocyclic ring system of 5 or 6 carbon atoms; and~~

~~30 R<sup>4</sup> and R<sup>5</sup> may be joined together by the chain -O-CH<sub>2</sub>-O- or -O-CH<sub>2</sub>-CH<sub>2</sub>-O- .~~

2. A method of claim 1 comprising: administering a therapeutically effective amount of a compound of formula (II)



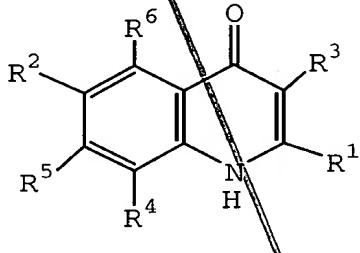
5

(II)

including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates thereof wherein:

10 R<sup>2</sup> is a monocyclic substituted or unsubstituted heteroaryl group.

3. A method of claim 2 comprising: administering a therapeutically effective amount of a compound of formula  
15 (III)



(III)

20 including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates thereof wherein:

R<sup>2</sup> is 4-oxazolyl, substituted 4-oxazolyl, 5-oxazolyl, or substituted 5-oxazolyl;

25 R<sup>3</sup> is hydrogen, hydroxy, NR<sup>8</sup>R<sup>9</sup>, alkyl of 1 to 4 carbons, alkenyl of 2 to 4 carbons, alkynyl of 2 to 4

carbons, substituted alkyl of 1 to 4 carbons, phenyl, substituted phenyl, cycloalkyl of 5 to 7 carbons, substituted cycloalkyl of 5 to 7 carbons, monocyclic heterocycloalkyl and monocyclic heteroaryl;

5        R<sup>4</sup> is hydrogen, halogen, nitro, hydroxy, alkyl of 1 to 4 carbons, cyano, CF<sub>3</sub>, OCF<sub>3</sub>, OCH<sub>3</sub>, SCH<sub>3</sub>, S(O)CH<sub>3</sub>, or S(O)<sub>2</sub>CH<sub>3</sub>;

          R<sup>5</sup> is hydrogen, halogen, nitro, hydroxy, alkyl of 1 to 4 carbons, cyano, vinyl, CF<sub>3</sub>, CF<sub>2</sub>CF<sub>3</sub>, CH=CF<sub>2</sub>, OCH<sub>3</sub>,

10      OCF<sub>3</sub>, OCHF<sub>2</sub>, SCH<sub>3</sub>, S(O)CH<sub>3</sub>, or S(O)<sub>2</sub>CH<sub>3</sub>; and

          R<sup>6</sup> is hydrogen, halogen, nitro, hydroxy, alkyl of 1 to 4 carbons, cyano, CF<sub>3</sub>, OCH<sub>3</sub>, OCF<sub>3</sub>, SCH<sub>3</sub>, S(O)CH<sub>3</sub>, and S(O)<sub>2</sub>CH<sub>3</sub>.

15      4. A method of Claim 3 comprising: administering a therapeutically effective amount of a compound including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates wherein:

20      R<sup>2</sup> is 4-oxazolyl, substituted 4-oxazolyl, 5-oxazolyl, substituted 5-oxazolyl or heteroaryl;

          R<sup>3</sup> is hydrogen, hydroxy, halogen, methyl or NR<sup>8</sup>R<sup>9</sup>;

          R<sup>4</sup> is hydrogen;

25      R<sup>5</sup> is halogen, methyl, ethyl, substituted alkenyl, alkyne, OMe or OCF<sub>3</sub>; and

          R<sup>6</sup> is hydrogen.

30      5. A method of Claim 4 comprising: administering a therapeutically effective amount of a compound including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates wherein:

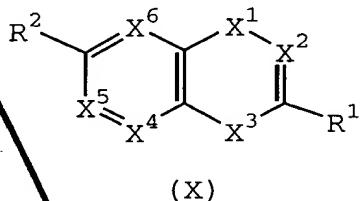
          R<sup>2</sup> is 4-oxazolyl, substituted 4-oxazolyl, 5-oxazolyl or substituted 5-oxazolyl;

35      R<sup>3</sup> is hydrogen, hydroxy, halogen or methyl;

$R^4$  is hydrogen;  
 $R^5$  is halogen, methyl or OMe; and  
 $R^6$  is hydrogen.

5 6. A method of treating inosine monophosphate dehydrogenase associated disorders comprising: administering a therapeutically effective amount of a phosphodiesterase Type 4 inhibitor and a compound of formula (X):

10



including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates

15 thereof wherein:

$X^1$  is  $C=O$ ,  $-S(O)-$ , or  $-S(O)_2-$ ;  
 $X^2$  is  $CR^3$  or N;  
 $X^3$  is  $-NH-$ ,  $-O-$ , or  $-S-$ ;  
 $X^4$  is  $CR^4$  or N;  
 $X^5$  is  $CR^5$  or N;  
 $X^6$  is  $CR^6$  or N;  
 $R^1$  is alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl,  $NR^8R^9$ ,  $SR^{20}$ , cycloalkyl, substituted cycloalkyl, aryl, substituted aryl, heterocycloalkyl, or heteroaryl;  
 $R^2$  is halogen, cyano, nitro, hydroxy, oxo (double bond is no longer present between  $CR^2$  and  $X^6$ ),  $SR^7$ ,  $S(O)R^7$ ,  $SO_2R^7$ ,  $SO_2NR^8R^9$ ,  $CO_2R^7$ ,  $C(O)NR^8R^9$ , or heteroaryl;  
 $R^3$  is hydrogen, hydroxy, halogen, cyano,  $CO_2R^7$ ,  $NR^8R^9$ , alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl, substituted alkynyl, cycloalkyl, substituted

cycloalkyl, aryl, substituted aryl, heterocycloalkyl or heteroaryl;

R<sup>4</sup>, R<sup>5</sup>, and R<sup>6</sup> are independently selected from the group consisting of hydrogen, halogen, nitro, cyano,  
 5 O-R<sup>7</sup>, NR<sup>8</sup>R<sup>9</sup>, SR<sup>7</sup>, S(O)R<sup>7</sup>, SO<sub>2</sub>R<sup>7</sup>, SO<sub>3</sub>R<sup>7</sup>, SO<sub>2</sub>NR<sup>8</sup>R<sup>9</sup>, CO<sub>2</sub>R<sup>7</sup>, C(O)NR<sup>8</sup>R<sup>9</sup>, C(O)alkyl, C(O)substituted alkyl, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl and substituted alkynyl;

R<sup>7</sup>, R<sup>10</sup>, and R<sup>11</sup>, are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, alkynyl, cycloalkyl, substituted cycloalkyl, C(O)alkyl, C(O)substituted alkyl, C(O)cycloalkyl, C(O)substituted cycloalkyl, C(O)aryl, C(O)substituted aryl, C(O)Oalkyl, C(O)Osubstituted alkyl,  
 15 C(O)heterocycloalkyl, C(O)heteroaryl, aryl, substituted aryl, heterocycloalkyl and heteroaryl;

R<sup>8</sup> and R<sup>9</sup> are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, cycloalkyl, substituted cycloalkyl, alkenyl, alkynyl,  
 20 C(O)alkyl, C(O)substituted alkyl, C(O)cycloalkyl; C(O)substituted cycloalkyl, C(O)aryl, C(O)substituted aryl, C(O)Oalkyl, C(O)Osubstituted alkyl, C(O)heterocycloalkyl, C(O)heteroaryl, aryl, substituted aryl, heterocycloalkyl, and heteroaryl or R<sup>8</sup> and R<sup>9</sup> taken  
 25 together with the nitrogen atom to which they are attached complete a heterocycloalkyl or heteroaryl ring;

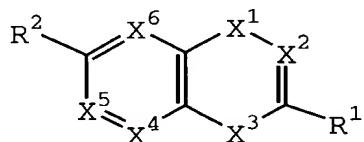
R<sup>20</sup> is alkyl, substituted alkyl, cycloalkyl, aryl, substituted aryl, heteroaryl or heterocycloalkyl;

R<sup>3</sup> and R<sup>1</sup> may be taken together with the carbon atoms  
 30 to which they are attached to form a monocyclic or substituted monocyclic ring system of 5 or 6 carbon atoms; and

R<sup>4</sup> and R<sup>5</sup> may be joined together by the chain -O-CH<sub>2</sub>-O- or -O-CH<sub>2</sub>-CH<sub>2</sub>-O-.

1 A method for the treatment or prevention of  
 allograft rejection comprising: administering a  
 therapeutically effective amount of a phosphodiesterase  
 Type 4 inhibitor and a compound of formula (X):

5



(X)

including isomers, enantiomers, diastereomers, tautomers,  
 pharmaceutically acceptable salts, prodrugs and solvates

10 thereof wherein:

11  $X^1$  is  $C=O$ ,  $-S(O)-$ , or  $-S(O)_2-$ ;12  $X^2$  is  $CR^3$  or N;13  $X^3$  is  $-NH-$ ,  $-O-$ , or  $-S-$ ;14  $X^4$  is  $CR^4$  or N;15  $X^5$  is  $CR^5$  or N;16  $X^6$  is  $CR^6$  or N;17  $R^1$  is alkyl, substituted alkyl, alkenyl, substituted  
 alkenyl, alkynyl, substituted alkynyl,  $NR^8R^9$ ,  $SR^{20}$ ,  
 cycloalkyl, substituted cycloalkyl, aryl, substituted  
 20 aryl, heterocycloalkyl, or heteroaryl;18  $R^2$  is halogen, cyano, nitro, hydroxy, oxo (double  
 bond is no longer present between  $CR^2$  and  $X^6$ ),  $SR^7$ ,  $S(O)R^7$ ,  
 $SO_2R^7$ ,  $SO_2NR^8R^9$ ,  $CO_2R^7$ ,  $C(O)NR^8R^9$ , or heteroaryl;25  $R^3$  is hydrogen, hydroxy, halogen, cyano,  $CO_2R^7$ ,  $NR^8R^9$ ,  
 alkyl, substituted alkyl, alkenyl, substituted alkenyl,  
 alkynyl, substituted alkynyl, cycloalkyl, substituted  
 cycloalkyl, aryl, substituted aryl, heterocycloalkyl or  
 heteroaryl;30  $R^4$ ,  $R^5$ , and  $R^6$  are independently selected from the  
 group consisting of hydrogen, halogen, nitro, cyano,SEARCHED INDEXED  
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U.S. PATENT AND TRADEMARK OFFICE

$\text{O-R}^7$ ,  $\text{NR}^8\text{R}^9$ ,  $\text{SR}^7$ ,  $\text{S(O)R}^7$ ,  $\text{SO}_2\text{R}^7$ ,  $\text{SO}_2\text{NR}^8\text{R}^9$ ,  $\text{CO}_2\text{R}^7$ ,  
 $\text{C(O)NR}^8\text{R}^9$ ,  $\text{C(O)alkyl}$ ,  $\text{C(O)substituted alkyl}$ ,  $\text{alkyl}$ ,  
 $\text{substituted alkyl}$ ,  $\text{alkenyl}$ ,  $\text{substituted alkenyl}$ ,  $\text{alkynyl}$   
 $\text{and substituted alkynyl}$ ;

5         $\text{R}^7$ ,  $\text{R}^{10}$ , and  $\text{R}^{11}$ , are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, alkynyl, cycloalkyl, substituted cycloalkyl,  $\text{C(O)alkyl}$ ,  $\text{C(O)substituted alkyl}$ ,  $\text{C(O)cycloalkyl}$ ,  $\text{C(O)substituted cycloalkyl}$ ,  $\text{C(O)aryl}$ ,  $\text{C(O)substituted aryl}$ ,  
10       $\text{C(O)Oalkyl}$ ,  $\text{C(O)Osubstituted alkyl}$ ,  $\text{C(O)heterocycloalkyl}$ ,  $\text{C(O)heteroaryl}$ , aryl, substituted aryl, heterocycloalkyl and heteroaryl;

$\text{R}^8$  and  $\text{R}^9$  are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl,

15      cycloalkyl, substituted cycloalkyl, alkenyl, alkynyl,  $\text{C(O)alkyl}$ ,  $\text{C(O)substituted alkyl}$ ,  $\text{C(O)cycloalkyl}$ ,  $\text{C(O)substituted cycloalkyl}$ ,  $\text{C(O)aryl}$ ,  $\text{C(O)substituted aryl}$ ,  $\text{C(O)Oalkyl}$ ,  $\text{C(O)Osubstituted alkyl}$ ,  $\text{C(O)heterocycloalkyl}$ ,  $\text{C(O)heteroaryl}$ , aryl, substituted aryl, heterocycloalkyl, and heteroaryl or  $\text{R}^8$  and  $\text{R}^9$  taken together with the nitrogen atom to which they are attached complete a heterocycloalkyl or heteroaryl ring;

20       $\text{R}^{20}$  is alkyl, substituted alkyl, cycloalkyl, aryl, substituted aryl, heterocycloalkyl, and heteroaryl or heterocycloalkyl;

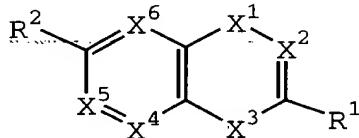
25       $\text{R}^3$  and  $\text{R}^1$  may be taken together with the carbon atoms to which they are attached to form a monocyclic or substituted monocyclic ring system of 5 or 6 carbon atoms; and

30       $\text{R}^4$  and  $\text{R}^5$  may be joined together by the chain  
 $-\text{O-CH}_2\text{-O-}$  or  $-\text{O-CH}_2\text{-CH}_2\text{-O-}$ .

8. A method of Claim 6 wherein: the phosphodiesterase Type 4 inhibitor is Rolipram.

9. A method of Claim 6 wherein: the phosphodiesterase Type 4 inhibitor is [4-[3-(cyclopentyloxy)-4-methoxy-phenyl]-2-pyrroridinone].

5 10. A compound of formula (I)



(I)

including isomers, enantiomers, diastereomers, tautomers,  
10 pharmaceutically acceptable salts, prodrugs and solvates  
thereof wherein:

$\text{X}^1$  is  $\text{C}=\text{O}$ ,  $-\text{S}(\text{O})-$ , or  $-\text{S}(\text{O})_2-$ ;

$\text{X}^2$  is  $\text{CR}^3$  or N;

$\text{X}^3$  is  $-\text{NH}-$ ,  $-\text{O}-$ , or  $-\text{S}-$ ;

15  $\text{X}^4$  is  $\text{CR}^4$  or N;

$\text{X}^5$  is  $\text{CR}^5$  or N;

$\text{X}^6$  is  $\text{CR}^6$  or N;

$\text{R}^1$  is alkyl, substituted alkyl, alkenyl, substituted  
alkenyl, alkynyl, substituted alkynyl, cycloalkyl,

20 substituted cycloalkyl, aryl, substituted aryl,  
heterocycloalkyl, or heteroaryl;

$\text{R}^2$  is cyano, hydroxy, oxo (double bond is no longer  
present between  $\text{CR}^2$  and  $\text{X}^6$ ),  $\text{SR}^7$ ,  $\text{S}(\text{O})\text{R}^7$ ,  $\text{SO}_2\text{R}^7$ ,  $\text{SO}_2\text{NR}^8\text{R}^9$ ,  
 $\text{CO}_2\text{R}^7$ ,  $\text{C}(\text{O})\text{NR}^8\text{R}^9$ , or heteroaryl;

25  $\text{R}^3$  is hydrogen, hydroxy, halogen, cyano,  $\text{CO}_2\text{R}^7$ ,  $\text{NR}^8\text{R}^9$ ,  
alkyl, substituted alkyl, alkenyl, substituted alkenyl,  
alkynyl, substituted alkynyl, cycloalkyl, substituted  
cycloalkyl, aryl, substituted aryl, heterocycloalkyl or  
heteroaryl;

30  $\text{R}^4$ ,  $\text{R}^5$ , and  $\text{R}^6$  are independently selected from the  
group consisting of hydrogen, halogen, nitro, cyano,

$O-R^7$ ,  $NR^8R^9$ ,  $SR^7$ ,  $S(O)R^7$ ,  $SO_2R^7$ ,  $SO_3R^7$ ,  $SO_2NR^8R^9$ ,  $CO_2R^7$ ,  $C(O)NR^8R^9$ ,  $C(O)alkyl$ ,  $C(O)$ substituted alkyl, alkyl, substituted alkyl, alkenyl, substituted alkenyl, alkynyl and substituted alkynyl;

5        $R^7$ ,  $R^{10}$ , and  $R^{11}$ , are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl, alkenyl, alkynyl, cycloalkyl, substituted cycloalkyl,  $C(O)alkyl$ ,  $C(O)$ substituted alkyl,  $C(O)cycloalkyl$ ,  $C(O)$ substituted cycloalkyl,  $C(O)aryl$ ,  $C(O)$ substituted aryl,

10       $C(O)Oalkyl$ ,  $C(O)O$ substituted alkyl,  $C(O)$ heterocycloalkyl,  $C(O)$ heteroaryl, aryl, substituted aryl, heterocycloalkyl and heteroaryl;

$R^8$  and  $R^9$  are independently selected from the group consisting of hydrogen, alkyl, substituted alkyl,

15      cycloalkyl, substituted cycloalkyl, alkenyl, alkynyl,  $C(O)alkyl$ ,  $C(O)$ substituted alkyl,  $C(O)cycloalkyl$ ,  $C(O)$ substituted cycloalkyl,  $C(O)aryl$ ,  $C(O)$ substituted aryl,  $C(O)Oalkyl$ ,  $C(O)O$ substituted alkyl,  $C(O)$ heterocycloalkyl,  $C(O)$ heteroaryl, aryl, substituted aryl,

20      aryl, heterocycloalkyl, and heteroaryl or  $R^8$  and  $R^9$  taken together with the nitrogen atom to which they are attached complete a heterocycloalkyl or heteroaryl ring;

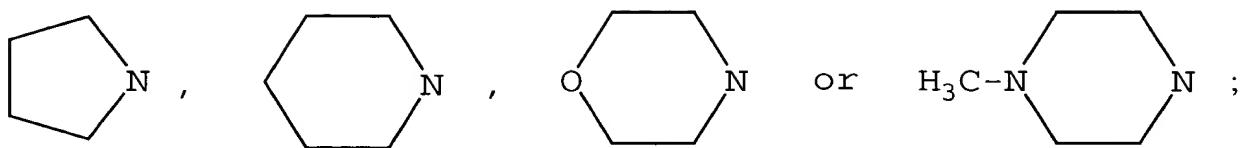
$R^3$  and  $R^1$  may be taken together with the carbon atoms to which they are attached to form a monocyclic or

25      substituted monocyclic ring system of 5 or 6 carbon atoms; and

$R^4$  and  $R^5$  may be joined together by the chain  
 $-O-CH_2-O-$  or  $-O-CH_2-CH_2-O-$ ;

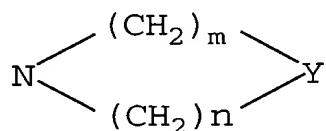
30      with the following provisos:

(c) when  $X^1$  is  $C=O$ ,  $X^2$  is  $CR^3$ ,  $X^3$  is  $NH$ ,  $X^4$  is  $CR^4$ ,  $X^5$  is  $CR^5$ ,  $X^6$  is  $CR^6$ ,  $R^1$  is substituted or meta unsubstituted phenyl,  $R^3$  is H,  $R^4$  is H,  $R^5$  is H and  $R^6$  is H, then  $R^2$  is not  $PhCONH$ ,



5 (d) when  $X^1$  is  $C=O$ ,  $X^2$  is  $CR^3$ ,  $X^3$  is  $NH$ ,  $X^4$  is  $CR^4$ ,  $X^5$  is  $CR^5$ ,  $X^6$  is  $CR^6$ ,  $R^1$  is phenyl substituted with H, F, Cl, Br, I,  $CH_3$ ,  $CF_3$ , OH,  $OCH_3$ ,  $OCF_3$ ,  $OCH_2CH_3$ ,  $NH_2$ ,  $NHCH_3$ ,  $N(CH_3)_2$ , O-benzyl,  $-C(=O)-R_0$ , or  $-C(=O)-OR_0$  and  $R_0$  is a lower alkyl group,  $R^3$  is H,  $R^4$  is H,  $R^5$  is H and  $R^6$  is H, then  $R^2$  is not

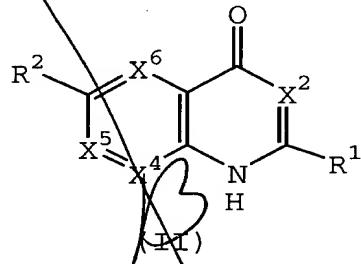
10



15 where Y is  $CH_2$ , O or S, m and n are each greater than 1, and the sum of m and n is between 3 and 6; and

20 (c) when  $R^2$  is heteroaryl, at least one of the heteroatoms must be O;

11. A compound of Claim 10 of formula (II)

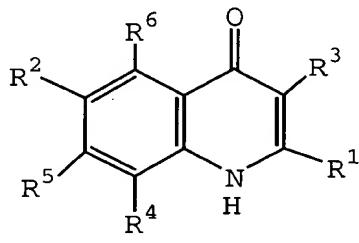


25

including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates thereof wherein:

30  $R^2$  is a monocyclic substituted or unsubstituted heteroaryl group.

## 12. A compound of Claim 11 of formula (III)



*Sub  
β<sup>2</sup>*  
5 including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates thereof wherein:

10         $R^2$  is 4-oxazolyl, substituted 4-oxazolyl, 5-oxazolyl, or substituted 5-oxazolyl;

15         $R^3$  is hydrogen, hydroxy,  $NR^8R^9$ , alkyl of 1 to 4 carbons, alkenyl of 2 to 4 carbons, alkynyl of 2 to 4 carbons, substituted alkyl of 1 to 4 carbons, phenyl, substituted phenyl, cycloalkyl of 5 to 7 carbons, substituted cycloalkyl of 5 to 7 carbons, monocyclic heterocycloalkyl and monocyclic heteroaryl;

20         $R^4$  is hydrogen, halogen, nitro, hydroxy, alkyl of 1 to 4 carbons, cyano,  $CF_3$ ,  $OCF_3$ ,  $OCH_3$ ,  $SCH_3$ ,  $S(O)CH_3$ , or  $S(O)_2CH_3$ ;

25         $R^5$  is hydrogen, halogen, nitro, hydroxy, alkyl of 1 to 4 carbons, cyano, vinyl,  $CF_3$ ,  $CF_2CF_3$ ,  $CH=CF_2$ ,  $OCH_3$ ,  $OCF_3$ ,  $OCHF_2$ ,  $SCH_3$ ,  $S(O)CH_3$ , or  $S(O)_2CH_3$ ; and

30         $R^6$  is hydrogen, halogen, nitro, hydroxy, alkyl of 1 to 4 carbons, cyano,  $CF_3$ ,  $OCH_3$ ,  $OCF_3$ ,  $SCH_3$ ,  $S(O)CH_3$ , and  $S(O)_2CH_3$ .

25

13. A compound of Claim 12 including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates wherein:

~~R<sup>2</sup> is 4-oxazolyl, substituted 4-oxazolyl, 5-oxazolyl, substituted 5-oxazolyl or heteroaryl;~~

~~R<sup>3</sup> is hydrogen, hydroxy, halogen, methyl or NR<sup>8</sup>R<sup>9</sup>;~~

~~R<sup>4</sup> is hydrogen;~~

5       R<sup>5</sup> is halogen, methyl, ethyl, substituted alkenyl, alkyne, OMe or OCF<sub>3</sub>; and

~~R<sup>6</sup> is hydrogen.~~

*Su*  
*B2*

14. A compound of Claim 13 including isomers,

10 enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates wherein:

~~R<sup>2</sup> is 4-oxazolyl, substituted 4-oxazolyl, 5-oxazolyl or substituted 5-oxazolyl;~~

~~R<sup>3</sup> is hydrogen, hydroxy, halogen or methyl;~~

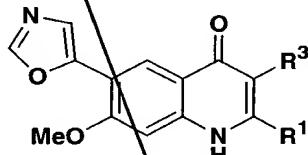
15       R<sup>4</sup> is hydrogen;

~~R<sup>5</sup> is halogen, methyl or OMe; and~~

~~R<sup>6</sup> is hydrogen.~~

15. A compound of Claim 10 of formula (V)

20



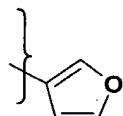
(V)

including isomers, enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates

25 selected from:

a compound of formula (V) wherein:

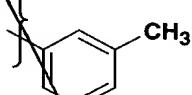
R<sup>1</sup> is



and R<sup>3</sup> is hydrogen;

5 a compound of formula (V) wherein:

R<sup>1</sup> is

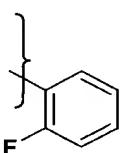


and R<sup>3</sup> is hydrogen;

10

a compound of formula (V) wherein:

R<sup>1</sup> is



15

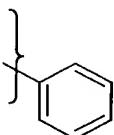
and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is CH<sub>3</sub> and R<sup>3</sup> is hydrogen;

20 a compound of formula (V) wherein:

R<sup>1</sup> is

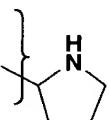


and R<sup>3</sup> is CH<sub>3</sub>;

25

a compound of formula (V) wherein:

R<sup>1</sup> is

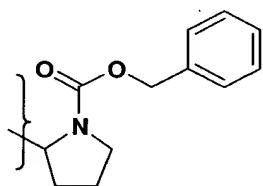


30

and R<sup>3</sup> is hydrogen;

5 a compound of formula (V) wherein:

R<sup>1</sup> is

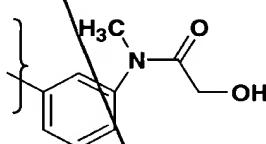


5

and R<sup>3</sup> is hydrogen;

10 *Sub b2* a compound of formula (V) wherein:

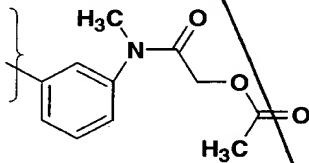
R<sup>1</sup> is



and R<sup>3</sup> is hydrogen;

15 a compound of formula (V) wherein:

R<sup>1</sup> is

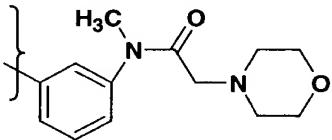


and R<sup>3</sup> is hydrogen;

20

a compound of formula (V) wherein:

R<sup>1</sup> is

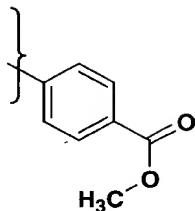


25

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

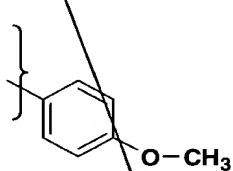


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

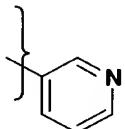


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

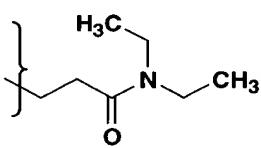


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

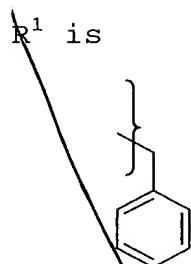
R<sup>1</sup> is



20

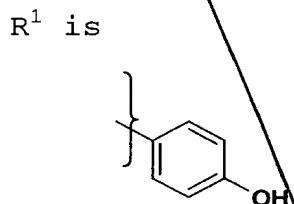
and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:



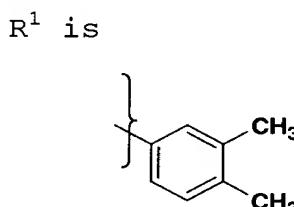
5 and  $R^3$  is hydrogen;

a compound of formula (V) wherein:



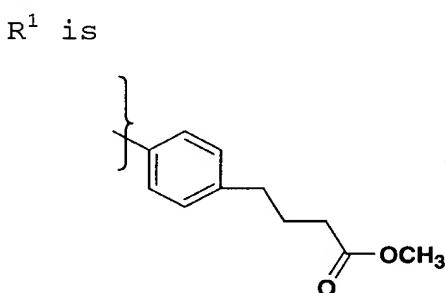
10 and  $R^3$  is hydrogen;

a compound of formula (V) wherein:



15 and  $R^3$  is hydrogen;

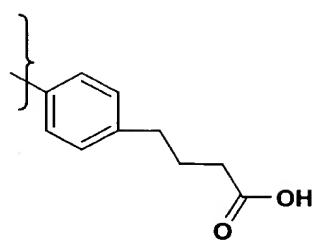
20 a compound of formula (V) wherein:



and  $R^3$  is hydrogen;

25 a compound of formula (V) wherein:

R<sup>1</sup> is

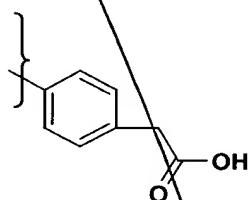


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

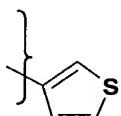


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is



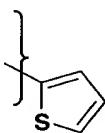
15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

20

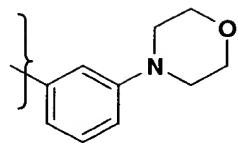
R<sup>1</sup> is



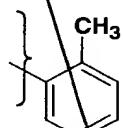
and R<sup>3</sup> is hydrogen;

25

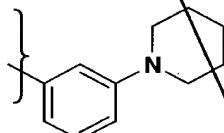
a compound of formula (V) wherein:

R<sup>1</sup> is5 and R<sup>3</sup> is hydrogen;

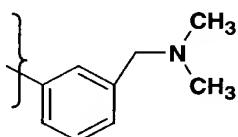
a compound of formula (V) wherein:

R<sup>1</sup> is10 and R<sup>3</sup> is hydrogen;

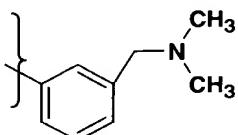
a compound of formula (V) wherein:

R<sup>1</sup> is15 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

20 R<sup>1</sup> isand R<sup>3</sup> is hydrogen;

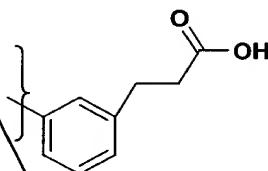
25 a compound of formula (V) wherein:

R<sup>1</sup> is

and  $R^3$  is Br;

a compound of formula (V) wherein:

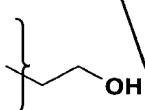
$R^1$  is



and  $R^3$  is hydrogen;

*Suh  
B2* a compound of formula (V) wherein:

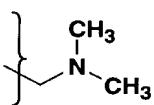
10  $R^1$  is



15 and  $R^3$  is hydrogen;

a compound of formula (V) wherein:

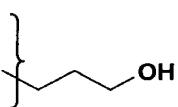
20  $R^1$  is



25 and  $R^3$  is hydrogen;

a compound of formula (V) wherein:

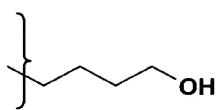
$R^1$  is



30 and  $R^3$  is hydrogen;

a compound of formula (V) wherein:

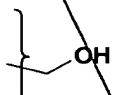
5      R<sup>1</sup> is



10     and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

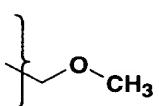
15     R<sup>1</sup> is



20     and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

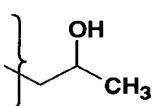
25     R<sup>1</sup> is



and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

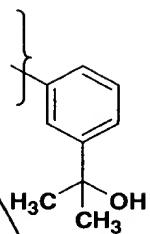
30     R<sup>1</sup> is



35     and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

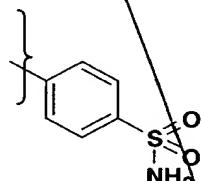
R<sup>1</sup> is



5 and R<sup>3</sup> is hydrogen;

*5M  
β<sub>2</sub>*  
a compound of formula (V) wherein:

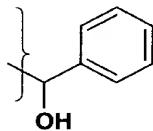
R<sup>1</sup> is



10 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

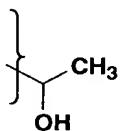
15 R<sup>1</sup> is



20 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

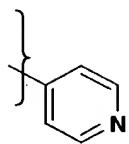
R<sup>1</sup> is



25 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

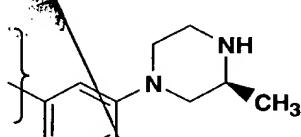
5      R<sup>1</sup> is



10     and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

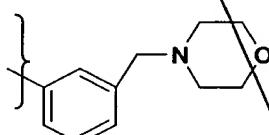
15     R<sup>1</sup> is



20     and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

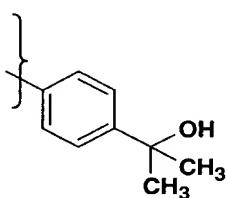
25     R<sup>1</sup> is



and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

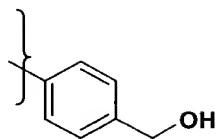
30     R<sup>1</sup> is



and R<sup>3</sup> is hydrogen;

35     a compound of formula (V) wherein:

R<sup>1</sup> is

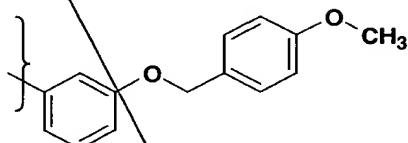


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

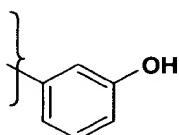


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

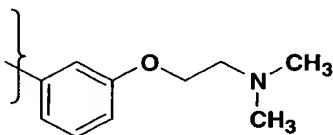


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is



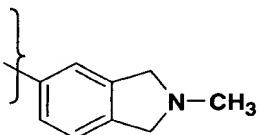
20

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

25

R<sup>1</sup> is

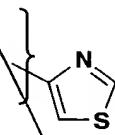


and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

5



and R<sup>3</sup> is hydrogen;

10 a compound of formula (V) wherein:

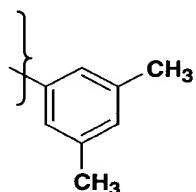
R<sup>1</sup> is

15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is



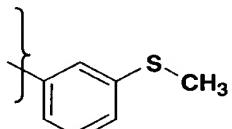
20

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

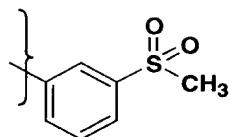
25



and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

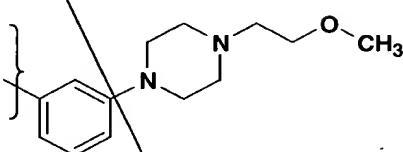


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

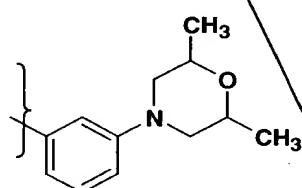


and R<sup>3</sup> is hydrogen;

10

a compound of formula (V) wherein:

R<sup>1</sup> is

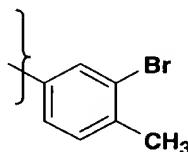


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

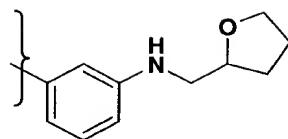


20

and R<sup>3</sup> is hydrogen;

25 a compound of formula (V) wherein:

R<sup>1</sup> is

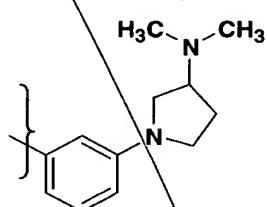


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is



10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is



15

and R<sup>3</sup> is hydrogen;

20 a compound of formula (V) wherein:

R<sup>1</sup> is



and R<sup>3</sup> is hydrogen;

25

a compound of formula (V) wherein:

R<sup>1</sup> is

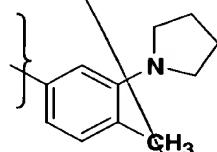


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

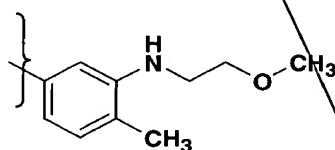


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

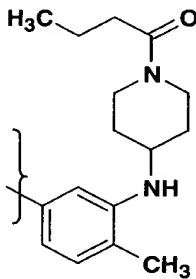


15

and R<sup>3</sup> is hydrogen;

20 a compound of formula (V) wherein:

R<sup>1</sup> is

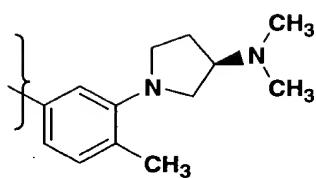


and R<sup>3</sup> is hydrogen;

25

a compound of formula (V) wherein:

R<sup>1</sup> is

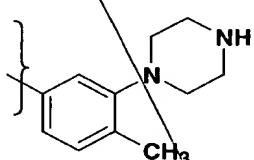


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is



10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

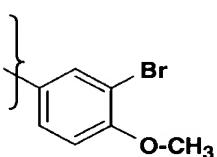


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

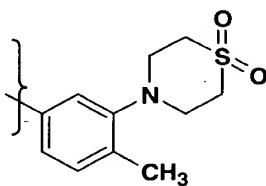


20

and R<sup>3</sup> is hydrogen;

25 a compound of formula (V) wherein:

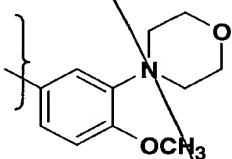
R<sup>1</sup> is



5 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is



10 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

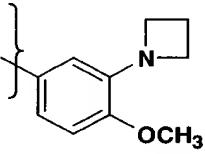
15 R<sup>1</sup> is



20 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

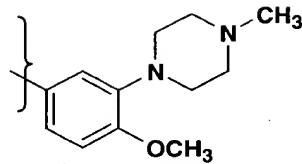
R<sup>1</sup> is



25 and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

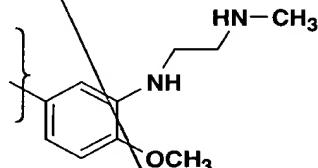


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

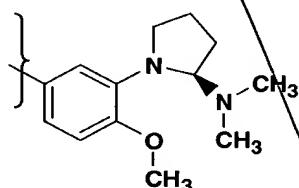


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

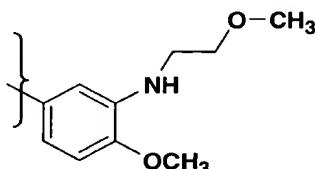


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

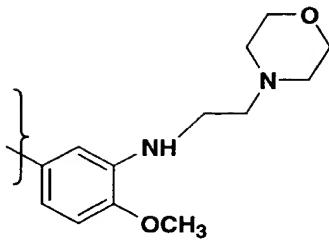


20

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

5 R<sup>1</sup> is

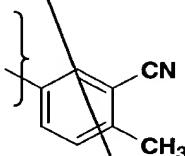


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

10 R<sup>1</sup> is

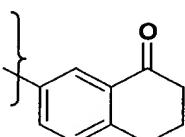


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

15 R<sup>1</sup> is

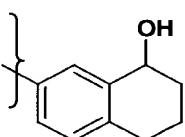


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

20 R<sup>1</sup> is

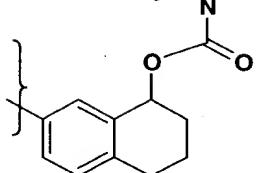


20

and R<sup>3</sup> is hydrogen;

25 a compound of formula (V) wherein:

R<sup>1</sup> is

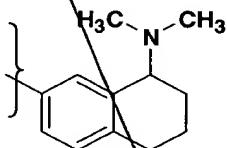


and R<sup>3</sup> is hydrogen;

5

a compound of formula (V) wherein:

R<sup>1</sup> is

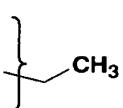


10

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is

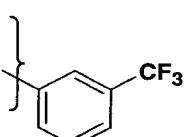


15

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

R<sup>1</sup> is



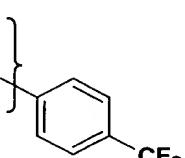
20

and R<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

25

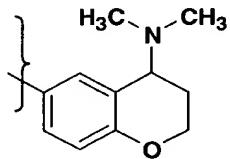
R<sup>1</sup> is



and  $R^3$  is hydrogen;

a compound of formula (V) wherein:

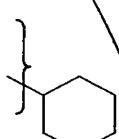
5       $R^1$  is



and  $R^3$  is hydrogen;

10     a compound of formula (V) wherein:

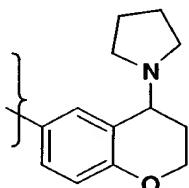
$R^1$  is



and  $R^3$  is hydrogen;

15     a compound of formula (V) wherein:

$R^1$  is

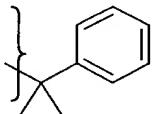


and  $R^3$  is hydrogen;

20

    a compound of formula (V) wherein:

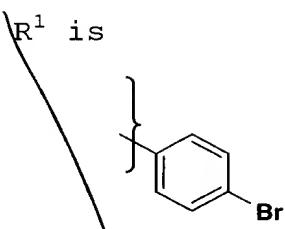
$R^1$  is



25

    and  $R^3$  is hydrogen;

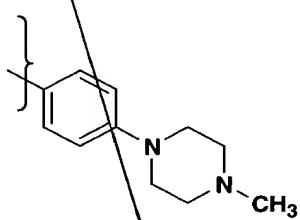
    a compound of formula (V) wherein:



5 and *R*<sup>3</sup> is hydrogen;

a compound of formula (V) wherein:

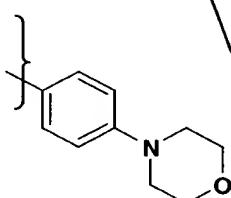
*R*<sup>1</sup> is



10 and *R*<sup>3</sup> is hydrogen;

and a compound of formula (V) wherein:

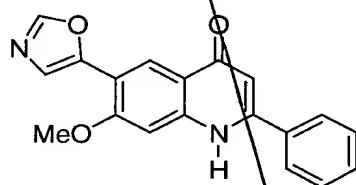
*R*<sup>1</sup> is



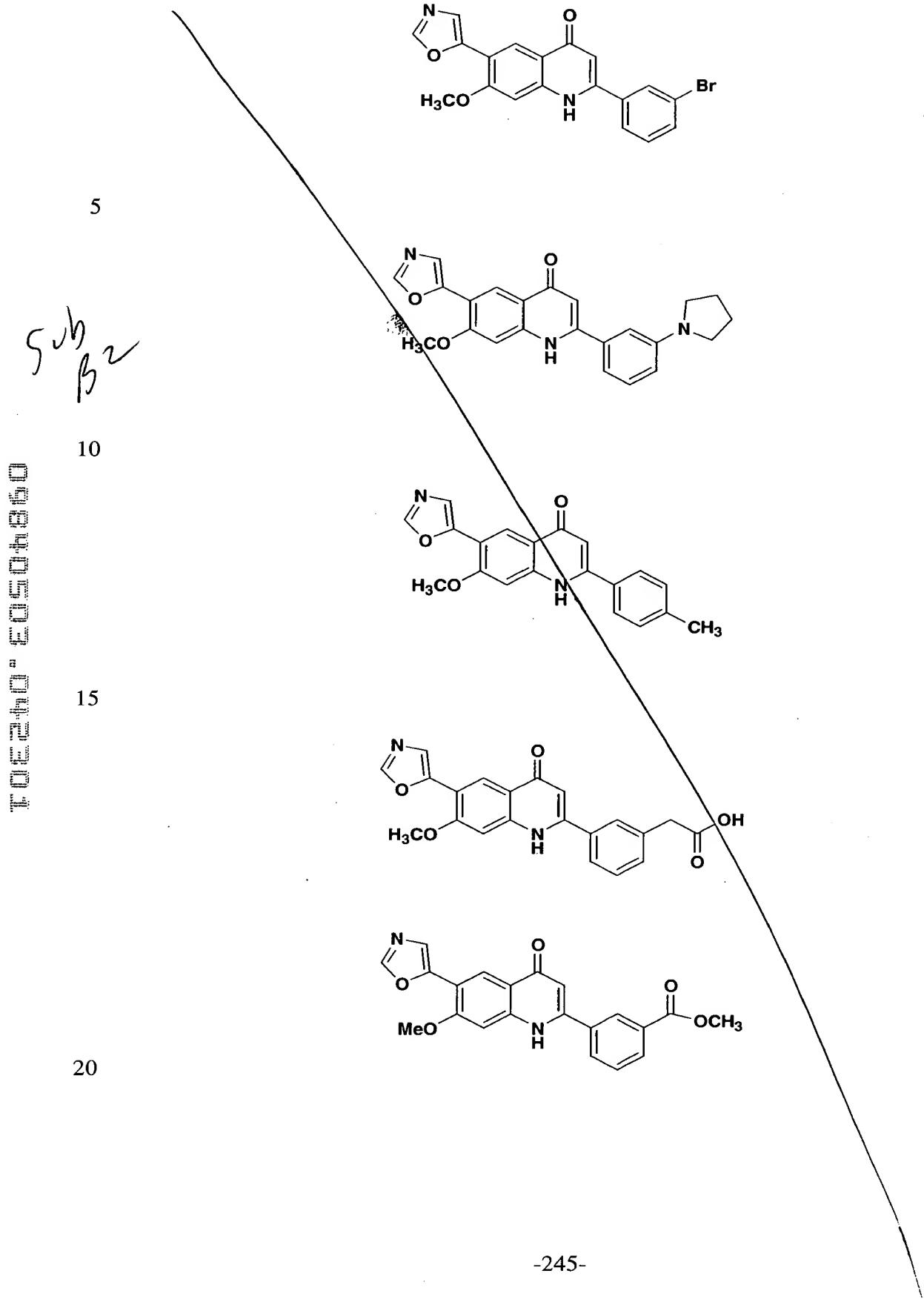
15 and *R*<sup>3</sup> is hydrogen.

16. A compound of Claim 10 including isomers,

20 enantiomers, diastereomers, tautomers, pharmaceutically acceptable salts, prodrugs and solvates thereof selected from:

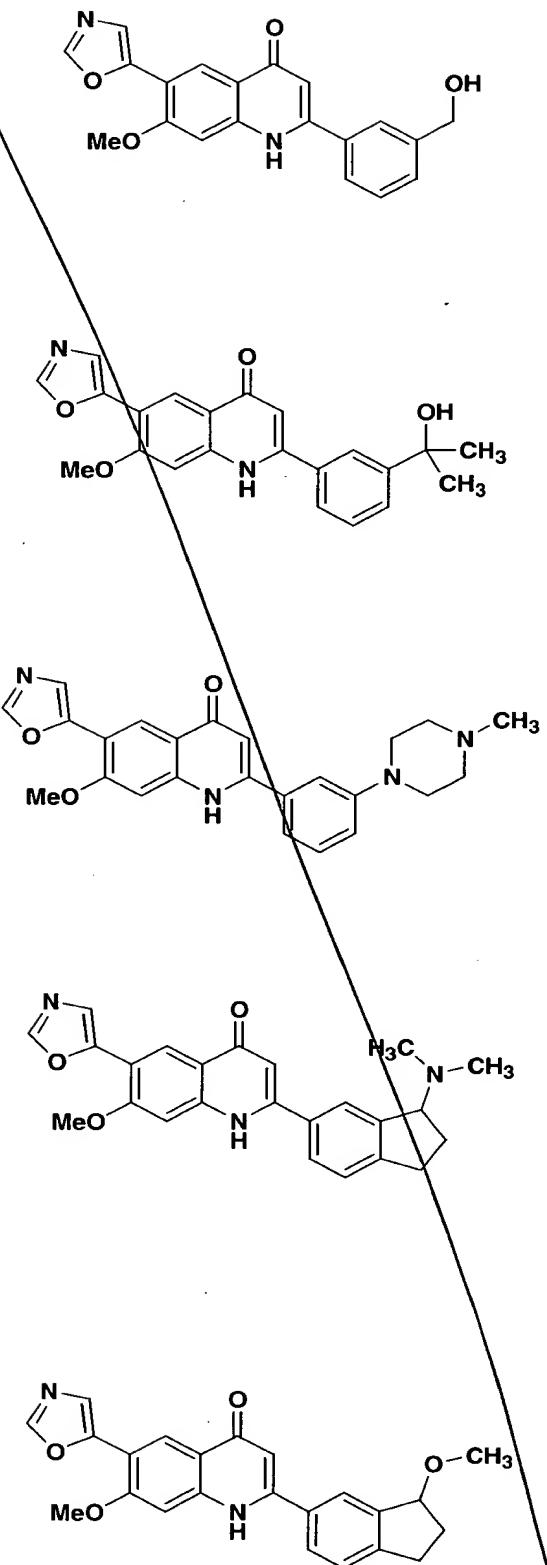


25



5  
*Sub*  
 $\beta_2$

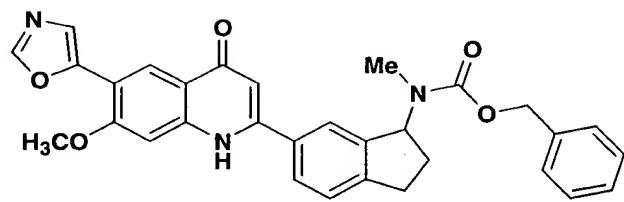
10  
15  
20  
25



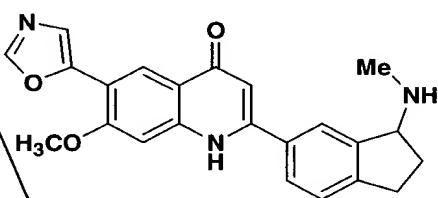
Sub  
 $\beta^2$

TOECHO = E020204000

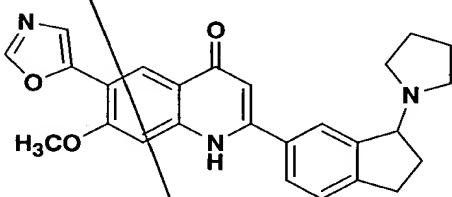
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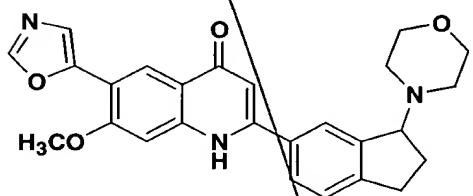
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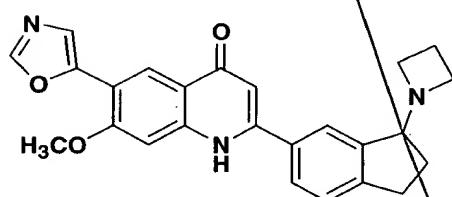
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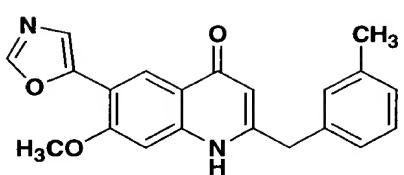


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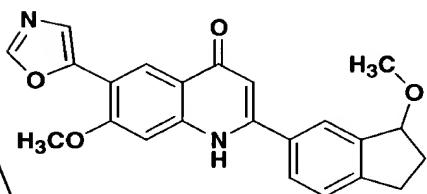


PROTIC SOLVENTS

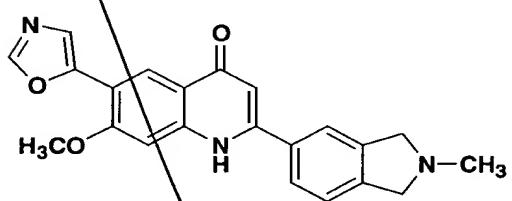
5

Sub  
 $\beta_2$ 

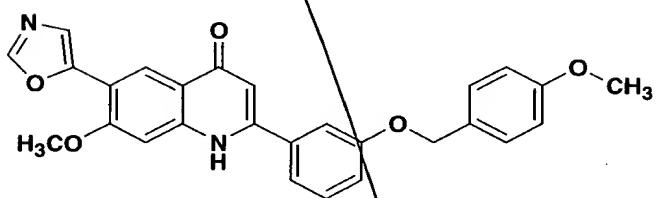
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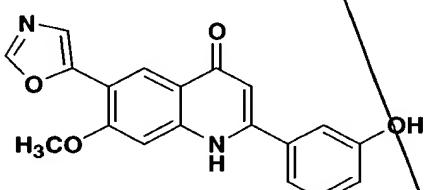
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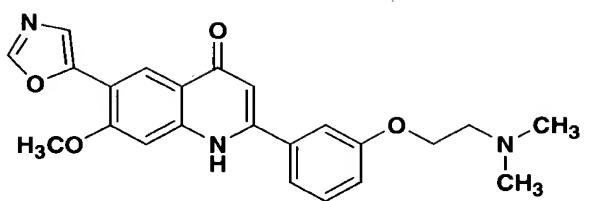


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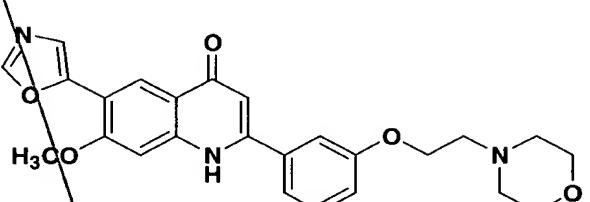


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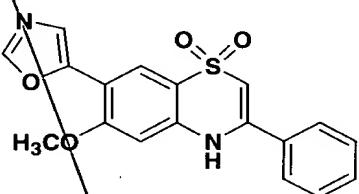




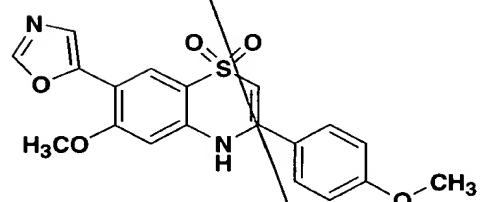
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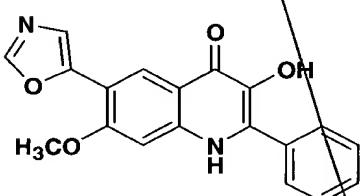
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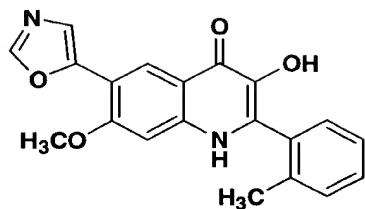


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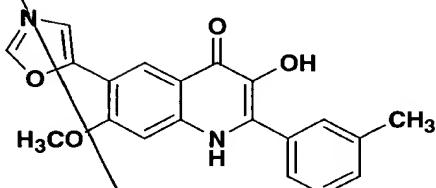
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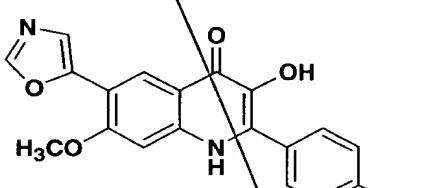


$\zeta_{ub}$   
 $\beta_2$

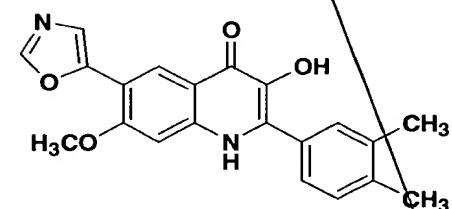
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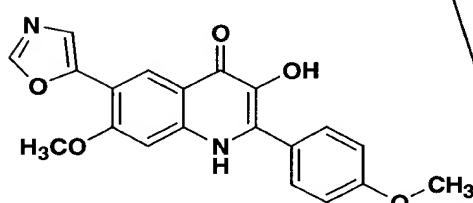
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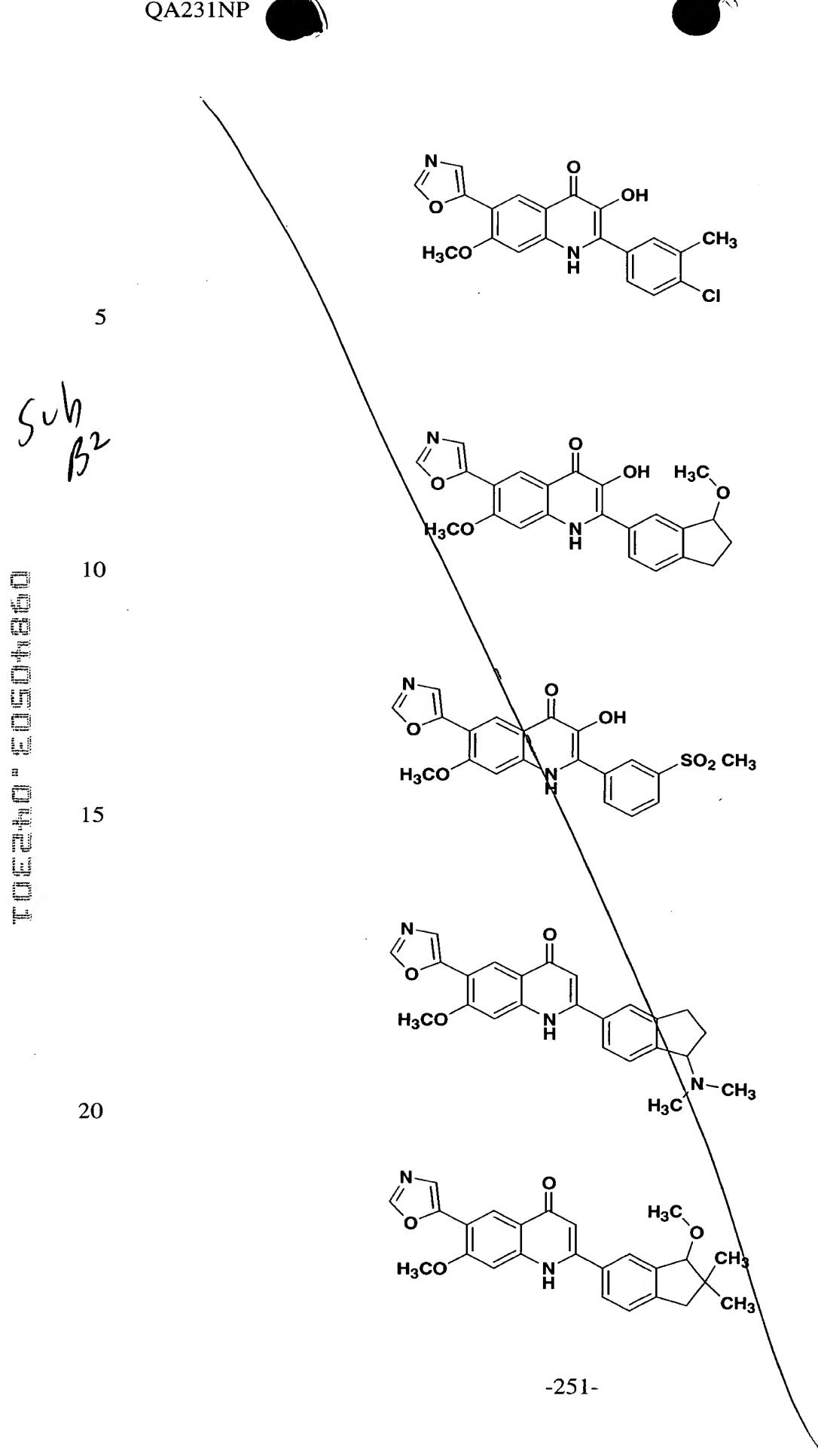


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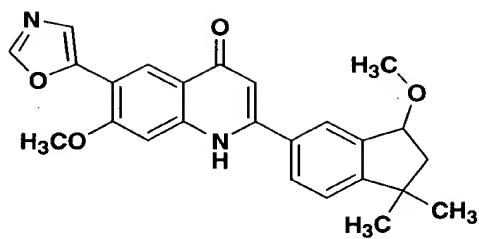
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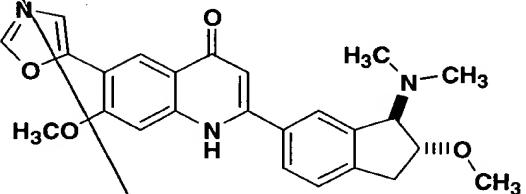


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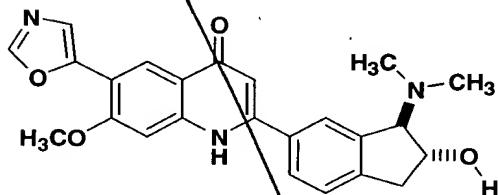
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Sub  
β2

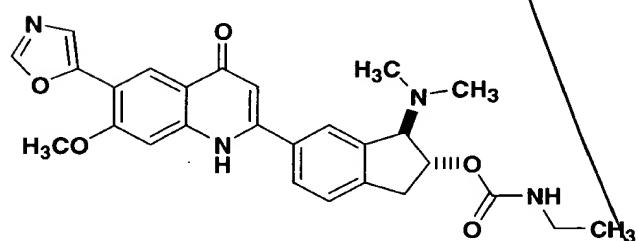
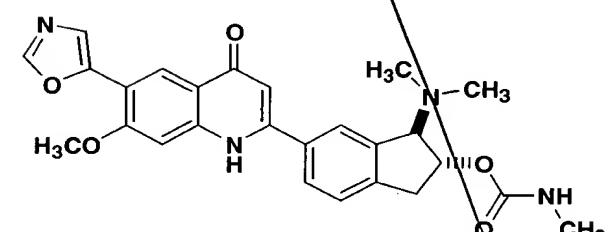
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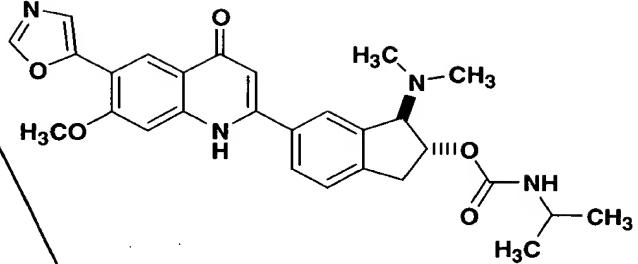
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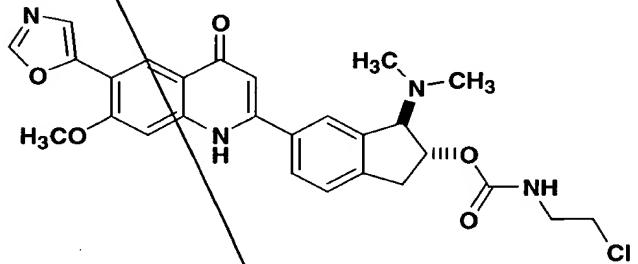
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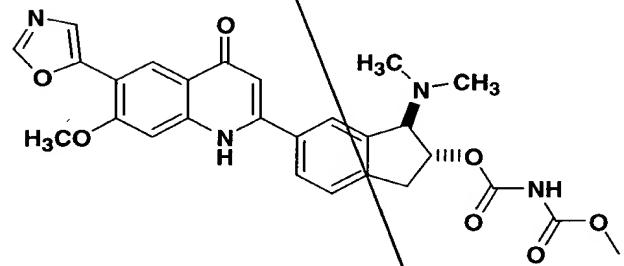
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 $\zeta_{\text{ub}} \beta^2$ 

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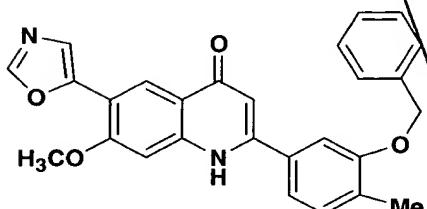


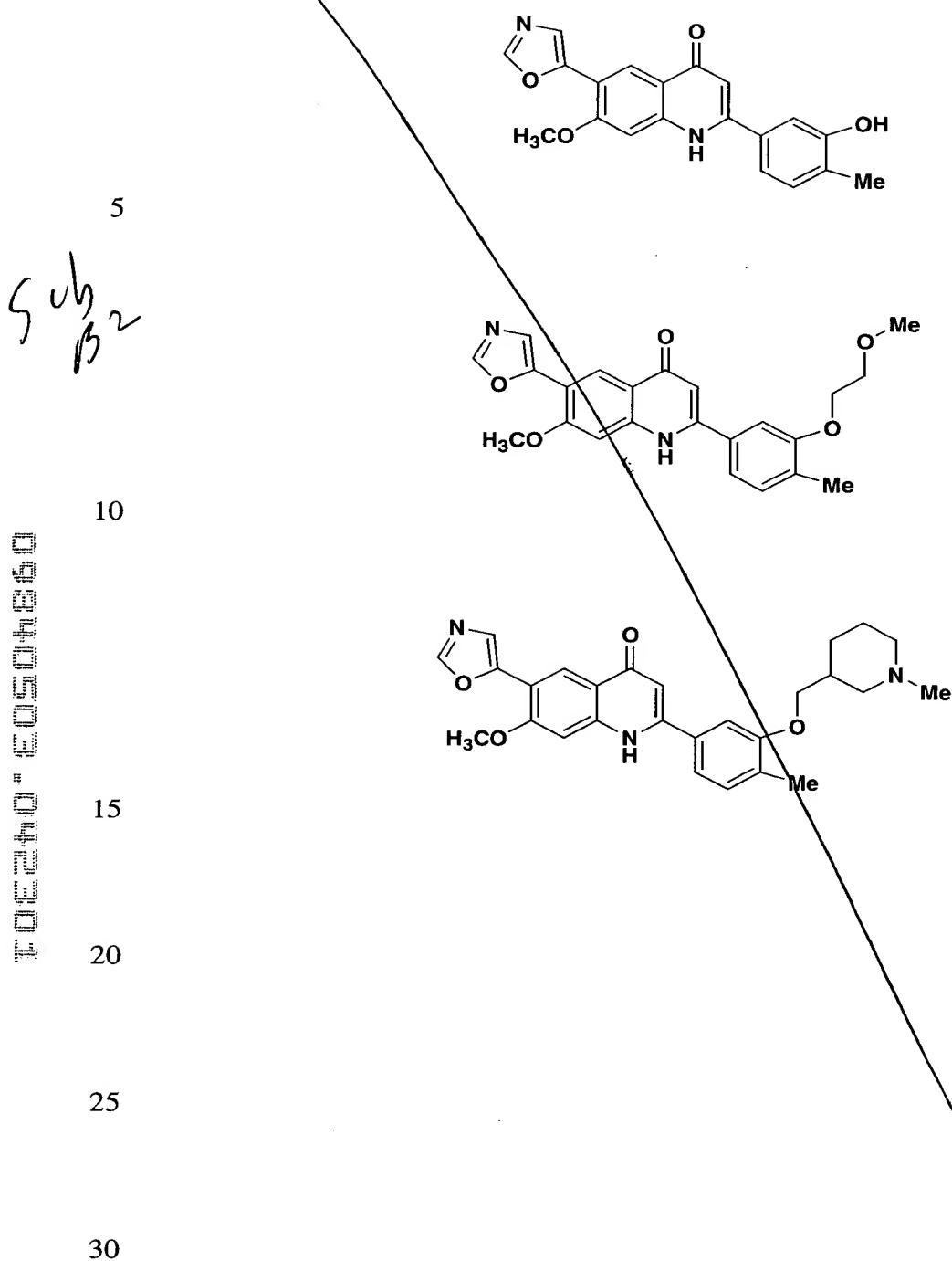
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TDBE200 = 0.050 ± 0.050

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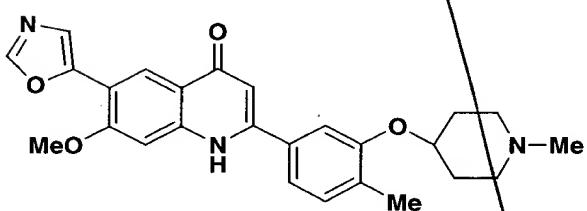
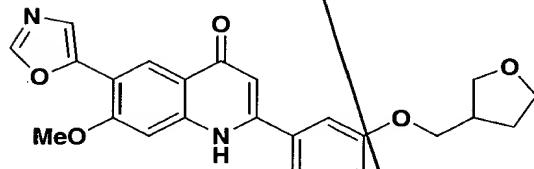
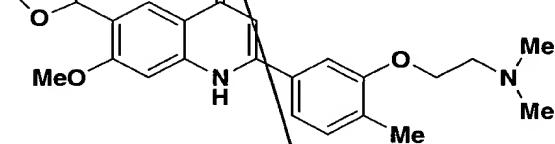
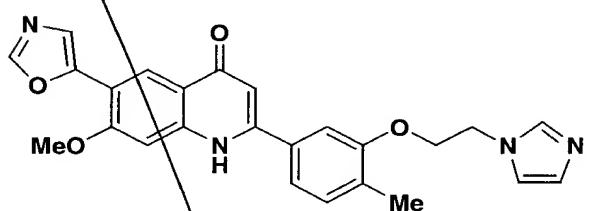
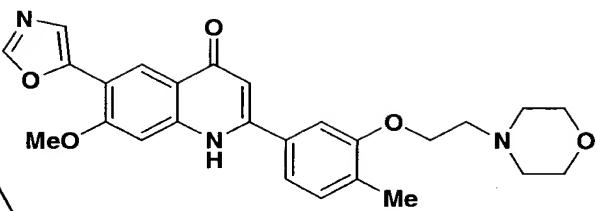
*Su*  
*B2*

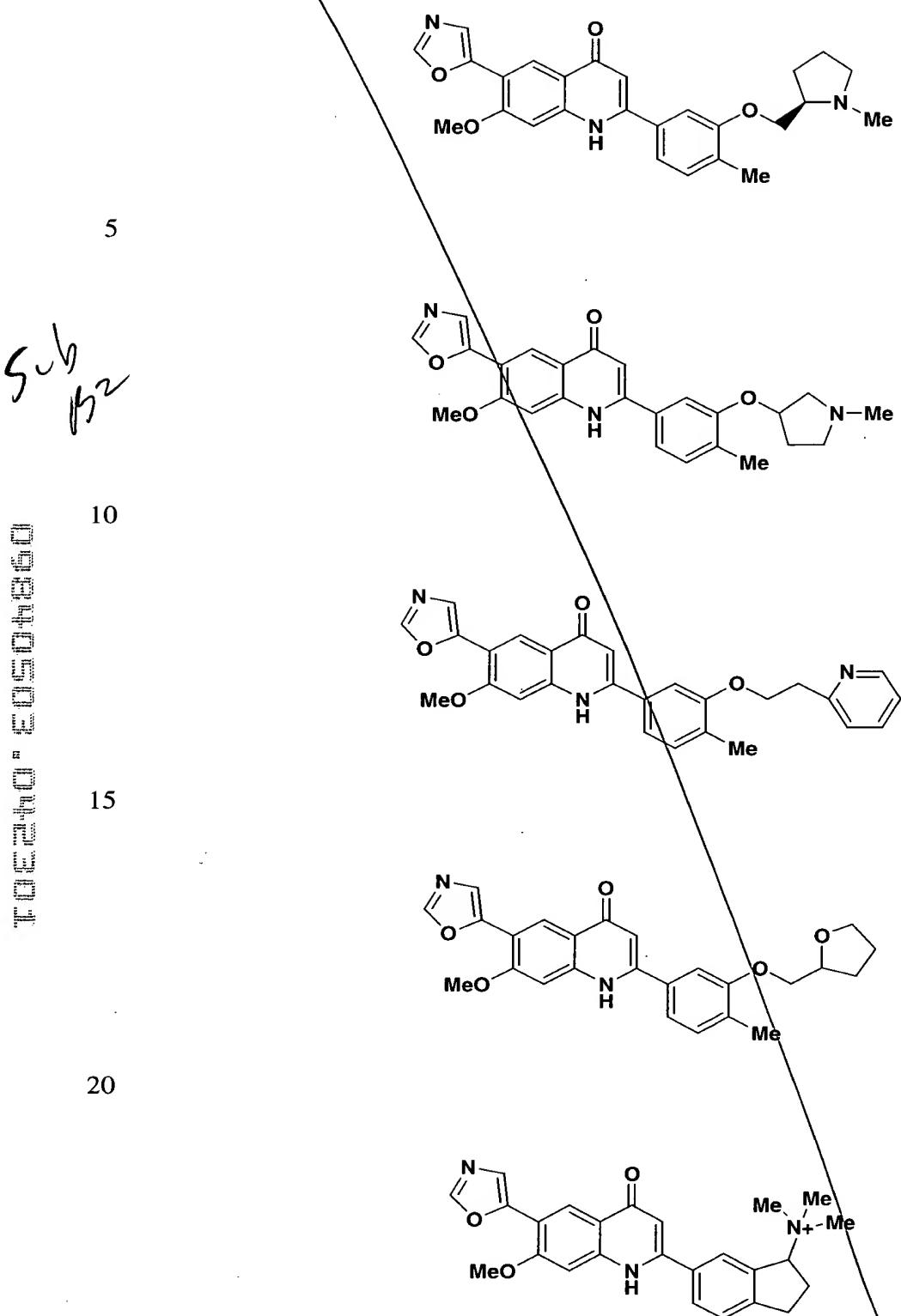
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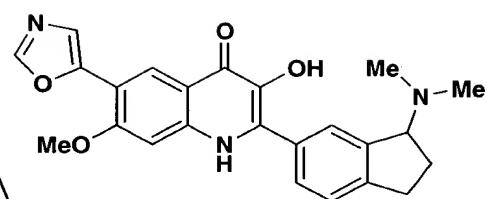
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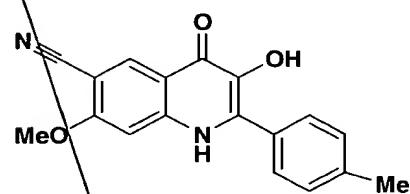




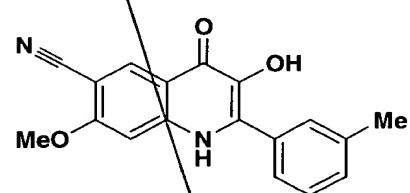


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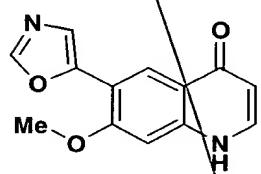
$$S^{\beta_1} \beta_2$$



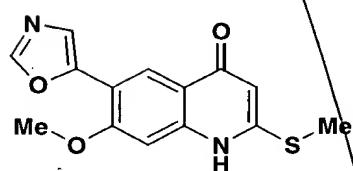
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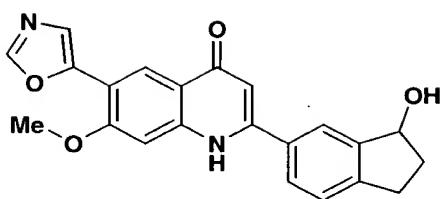
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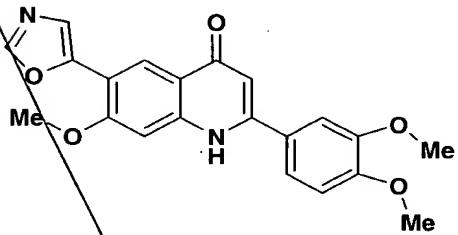
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TOP 20% - 2000+3600

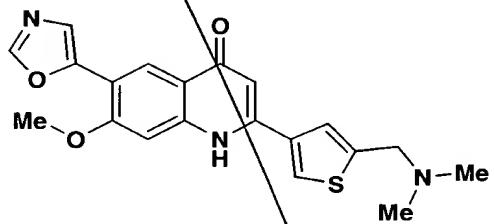
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*Sub  
β<sup>2</sup>*

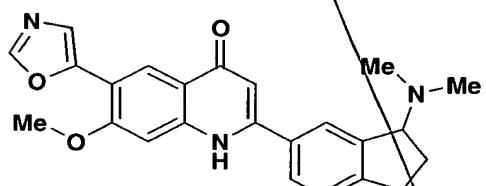
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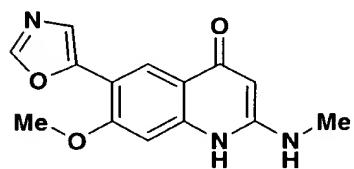
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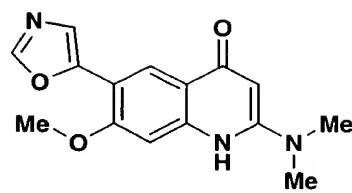
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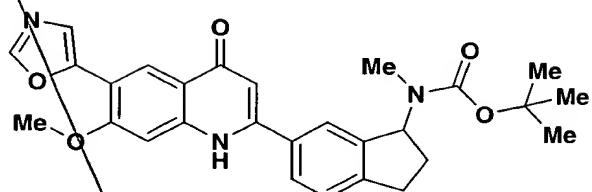
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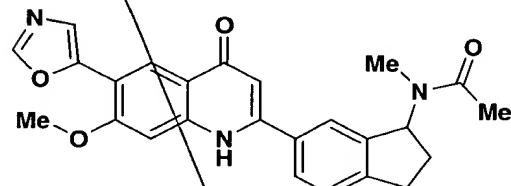
$\zeta_{\text{ub}}$   
 $\beta_2$



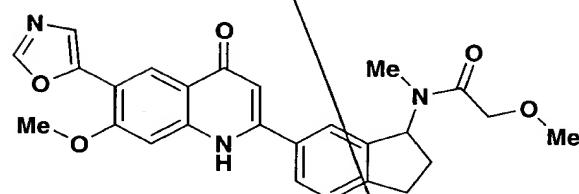
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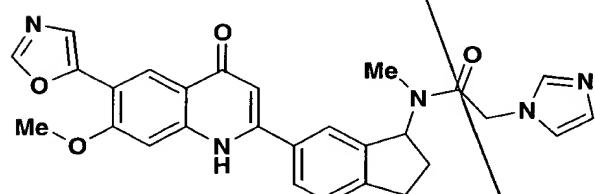
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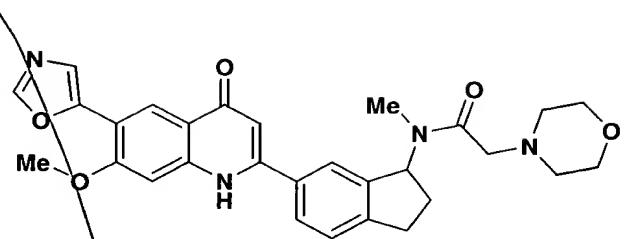


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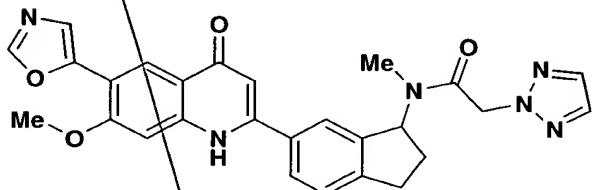


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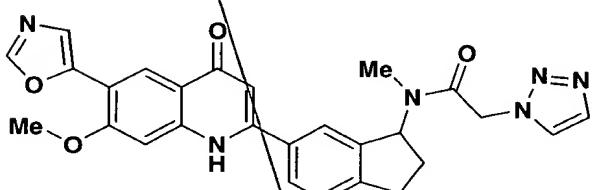
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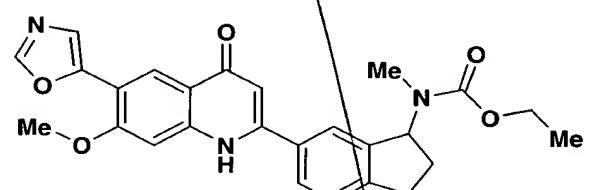
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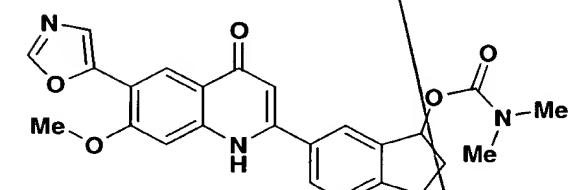
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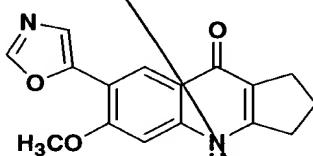
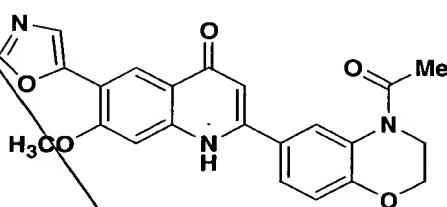
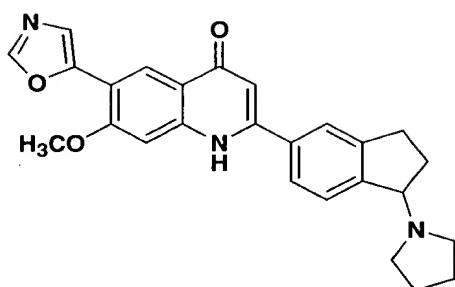


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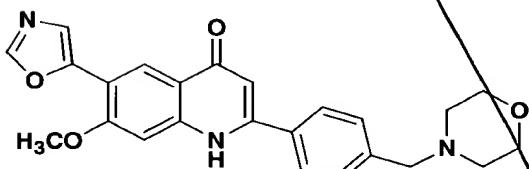


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and



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17. A pharmaceutical composition comprising a compound  
25 of Claim 10 and a pharmaceutically acceptable carrier.

18. A pharmaceutical composition comprising a compound of Claim 11 and a pharmaceutically acceptable carrier.

19. A pharmaceutical composition comprising a compound of Claim 12 and a pharmaceutically acceptable carrier.

20. A pharmaceutical composition comprising a compound of Claim 13 and a pharmaceutically acceptable carrier.

10 21. A pharmaceutical composition comprising a compound of Claim 14 and a pharmaceutically acceptable carrier.

22. A pharmaceutical composition comprising a compound of Claim 15 and a pharmaceutically acceptable carrier.

15 23. A pharmaceutical composition comprising a compound of Claim 16 and a pharmaceutically acceptable carrier.

24. A method of treating inosine monophosphate dehydrogenase associated disorders comprising: administering a therapeutically effective amount of the composition of Claim 17.

25 25. A method of treating inosine monophosphate dehydrogenase associated disorders comprising: administering a therapeutically effective amount of the composition of Claim 17 and another agent known to be useful in treatment of such disorders.

30 26. A method of treating inosine monophosphate dehydrogenase associated disorders comprising: administering a therapeutically effective amount of the pharmaceutical composition of Claim 17 and a phosphodiesterase Type 4 inhibitor.

27. A method for the treatment or prevention of allograft rejection comprising: administering a therapeutically effective amount of the pharmaceutical composition of Claim 17 and a phosphodiesterase Type 4 inhibitor.

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28. A method of Claim 7 wherein: the phosphodiesterase Type 4 inhibitor is Rolipram.

10 29. A method of Claim 7 wherein: the phosphodiesterase Type 4 inhibitor is [4-[3-(cyclopentyloxy)-4-methoxy-phenyl]-2-pyrrolidinone].

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